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Ageing Smiles:

Exploring Oral Health Challenges and Beyond

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Protecting Your Smile as You Age

As we age - so do our teeth. It is no surprise that dental issues, like cavities, are becoming more common among “older adults” (those regarded as senior citizens). Did you know that the World Health Organization (WHO) reported over 3.5 billion cases of oral diseases worldwide in 2017? Many of these cases are preventable, highlighting the importance of good oral care, especially as we age.

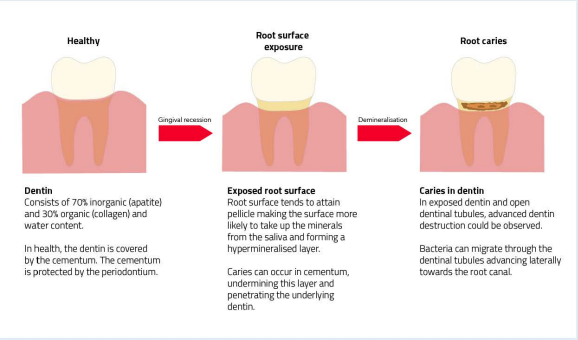
A major contributor to cavities is sugar. When we consume sugary foods and beverages, bacteria in our mouths were fed, producing acids that gradually wear away tooth enamel, leading to cavities. Not only the quantity, the frequency of sugar intake also matters significantly in cavity formation. Certain bacteria (without 's'), such as *streptococcus mutans* (italic), are skillful at metabolising sugar and generating acids, contributing to cavity development. With age, shifts occur in the composition of oral bacteria, with some types becoming more prevalent. These changes, coupled with factors such as rough tooth surfaces and reduced saliva production, heighten the vulnerability of older adults to cavities, particularly on root surfaces.

For older adults with compromised immune systems or those taking medications that induce dry mouth, the body's natural defences against oral bacteria may be weakened, further escalating the risk of cavities. Preventing cavities as we age necessitates a proactive approach, including regular dental check-ups, a balanced diet low in sugars, and diligent oral hygiene practices such as brushing and flossing. Dental professionals can offer personalised strategies for cavity prevention and management, addressing individual needs. By comprehending the factors contributing to cavities and through the adoption of preventive measures, older adults can preserve their dental health and radiant smiles for years to come. Stay informed, stay proactive, and keep smiling!

Understanding Risk Factors Leading to Tooth Decay in Older Adults

As we age, our risk of tooth decay increases due to various factors. Loss of gum tissue, previous experiences with cavities, and a build-up of harmful bacteria in the mouth all contribute to this risk. Additionally, lifestyle factors like diet and socioeconomic status can play a role. Studies show that there are peaks of tooth decay throughout our lives, with a significant increase around age 70, especially on the roots of teeth. This type of decay, known as root caries, can progress rapidly and is becoming more common as people keep their natural teeth for longer. Bacteria in our mouths feed on sugars from our diet, producing acids that eat away at tooth surfaces. When the balance between acid and minerals in our mouths is disrupted, decay can occur more easily. This imbalance can be worsened by factors like poor oral hygiene or certain medical conditions. Awareness of the factors that contribute to tooth decay, combined with taking of actions to maintain good oral health can help older adults to protect their smiles for years to come.

Periodontal disease, which causes gum recession and exposes tooth roots, can increase the risk of tooth decay. Deep gum pockets provide a breeding ground for bacteria, leading



to plaque build-up and further decay. Unlike the hard enamel covering the top of our teeth, the roots are softer and easier for bacteria to attack. Additionally, the removal of the protective layer on the root surface during periodontal therapy increases the risk of root caries.

Medical conditions like diabetes and certain medications can weaken the immune system and promote bacterial growth, increasing the risk of decay. Additionally, conditions like arthritis can make it difficult for older adults to maintain good oral hygiene. Decrease of saliva flow, often linked to medications or certain health issues, can spell trouble for oral health. Diabetes, for an instance, can affect saliva properties which decrease its effectiveness in protecting teeth. Elevated levels of certain bacteria in saliva are associated with diabetes and increased cavity risk. Saliva is not just there to keep our mouths moist; it is a crucial defender against tooth decay. It acts like a natural mouthwash, washing away food particles and neutralising acids produced by bacteria. When saliva flow diminishes, bacteria can multiply, acids linger, and the risk of decay will increase. So, staying hydrated as well as discussing about the medication side effects with your healthcare provider are essential to maintaining a healthy smile.

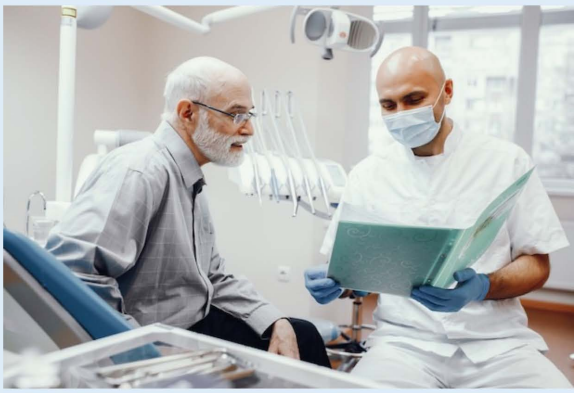
Maintaining proper oral hygiene habits is crucial to keep your smile bright and healthy. This means brushing your teeth regularly, flossing between them, and using mouthwash to rinse away harmful bacteria. However, as we age, physical changes can make these practices more difficult. Decreased mobility and changes in vision can make it harder to clean our teeth effectively, increasing the risk of decay. Hence, it is important to adjust our oral hygiene routine as needed, using tools like electric toothbrushes or specialised flossing aids to help overcome these challenges and maintain good oral health for years to come. Fluoride treatments are effective in preventing and treating dental decay, especially in older adults. Silver diamine fluoride and high-fluoride toothpaste have shown promise in preventing root caries in older populations.

Older adults are more likely to have dentures prescribed to them by their dentist. Ill-fitting dentures or partial dentures can become a breeding ground for trouble in your mouth. When they do not fit snugly, they can trap food bits and bacteria, especially around the roots of your teeth. This trapped debris creates an environment for bacteria to thrive, leading to an increased risk of decay. Ensuring your dentures fit properly and cleaning them regularly are very important.

Understanding Oral Microbiome and Its Relation to Tooth Decay

The complex world of the human microbiome, particularly in the gut, has long fascinated researchers due to its profound impact on health and disease. Shifts in this microbial ecosystem have been observed in individuals with chronic conditions like diabetes mellitus and Crohn's disease, often influenced by factors such as diet and nutrition. The connection between gut and oral microbiota remains somewhat vague. However, disruptions, known as dysbiosis, can occur due to various factors including poor oral hygiene, declining general health, and genetic predispositions. Dysbiosis is associated with an overgrowth of pathogenic microbes, heightening the risk of oral diseases like periodontal disease and dental caries. This prompts questions about whether dysbiosis in older adults with diabetes contributes to a higher incidence of dental caries. Studies examining the oral microbial composition in individuals with type 2 diabetes mellitus have revealed shifts in microbial genera, suggesting that environmental changes in the oral cavity and compromised immune systems associated with diabetes may influence oral microbiome composition.

Understanding this relationship is critical for maintaining overall health. Saliva emerges as a promising medium for studying the oral microbiome due to its shared microbial composition across oral sites and its non-invasive collection. Next-generation sequencing (NGS) technology revolutionises microbiological research by offering a deeper and broader analysis of microbial communities, providing invaluable insights into the oral microbiome's role in health and disease. Despite challenges such as PCR-induced errors and limited primer coverage, NGS holds tremendous potential for uncovering the intricacies of the oral microbiome. However, there remains a notable gap in research on the oral microbiome in dental caries among the older adults, particularly those with diabetes. Addressing this gap could offer valuable insights into the use of salivary microbiome analysis for predicting and managing decay in older adults.



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